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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,326	12/31/2003	Koichi Morita	P05934US01/BAS	8123

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EXAMINER	
CLEVELAND, MICHAEL B	

ART UNIT	PAPER NUMBER
1762	

DATE MAILED: 04/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/748,326	MORITA ET AL.	
	Examiner	Art Unit	
	Michael Cleveland	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 February 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *063005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-4 and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa et al. (U.S. Patent 3,628,984, hereafter '984) in view of Yamada et al. (U.S. Patent 5,576,121, hereafter '121) and Bachman et al. (U.S. Patent 4,210,431, hereafter '431).

'984 teaches a method for producing a carbon material having a coating layer on the surface characterized in that the method comprises dipping a core carbon material into a coat-forming carbon material (col. 3, lines 55-75), separating the core carbon material from the coat-forming carbon material (col. 3, lines 68-70), adding a solvent to the separated core carbon material, which is subjected to washing, drying (col. 3, line 70-col. 4, line 10), and calcination (col. 4, lines 33-47).

'984 does not teach that the substrate is a graphite core with an interplanar spacing of 0.335-0.340 nm for a lithium secondary battery. However, '121 teaches that such substrate require carbon coatings which may be disposed by the coating the particles with a carbon-producing resin, such as tar, and calcining (col. 6, lines 11-52). '121 is silent as to the particular details of such a method. Taking the references as a whole, it would have been obvious to one of

ordinary skill in the art at the time the invention was made to have used the method of '984 to have formed the coated particles of '121 with a reasonable expectation of success because '984 teaches that its method is suitable for coating carbon materials with carbon from carbonizable precursors and '984 teaches particular graphite (carbon) substrates which require such coatings.

'984 does not teach washing with an organic solvent. However, '431 teaches that after immersion into a decomposable carbon-containing fluid (col. 4, lines 1-8), the material to be carbonized may be rinsed with hot xylene. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have substitute the sulfuric acid wash or water rinse or '984 with the hot xylene rinse of '431 with a reasonable expectation of success because '431 teaches that hot xylene is another solvent suitable to rinse carbonaceous coating between impregnation and carbonization.

Claim 2: '984 does not explicitly teach a dipping temperature (thereby suggesting impregnation occurs at room temperature). '431 explicitly teaches dipping temperatures of 70 deg. C (col. 6, lines 12-13). The subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a *prima facie* case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549. Also, it has been held that "differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical." (MPEP 2144.05.II.A.). Further, the Examiner takes Official Notice that immersion bath temperature in the claimed range of 10-300 deg. C are known in the carbonization art.

Claim 3: '431 teaches the solvent may be at 100 °C (col. 6, lines 16-18).

Claim 4: '984 teaches impregnating under reduced pressure (col. 3, lines 60-63).

Claim 6: '984 teaches that the impregnation material may comprise pitch (col. 7, lines 68-75).

Claim 8: The ratio of solid matter to washing solvent would have been recognized as a result-effective variable for the process because the amount of solvent used would have affected the degree of cleaning and the ease of recycling and recovering the solvent (or alternatively, the cost involved with discarding the solvent). It has been held that the discovery of the optimum

value of a result effective variable in a known process is ordinarily within the skill in the art. *In re Boesch and Slaney*, 205 USPQ 215 (CCPA 1980). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum ratio of solid matter to organic solvent during washing to have optimized the degree of cleaning and ease of recycling and/or cost of discarding the solvent. Also, as stated above, "differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical." (MPEP 2144.05.II.A.)

Claim 9: The data in '984, Table 2, teach a ratio c of about 0.1.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa '984 in view of Yamada '121 and Bachman '431 as applied to claim 1 above, and further in view of Schardein (U.S. Patent 4,376,801, hereafter '801).

'984 and '431 are discussed above, but do not explicitly teach that the decomposable material is heavy petroleum oil. However, '801 teaches that heavy petroleum oil is a suitable carbon precursor, and therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used heavy petroleum oil as the particular carbon precursor of '984 and '431 with a reasonable expectation of success and with the expectation of similar results because '801 teaches that it is a suitable carbon precursors. The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa '984 in view of Yamada '121 and Bachman '431 as applied to claim 1 above, and further in view of Chu et al. (U.S. Patent 4,664,774, hereafter '774) and Okazaki et al. (U.S. Patent 4,909,923, hereafter '923).

'984 and '431 are discussed above, but do not explicitly teach that the decomposable material is material which has had quinoline-insoluble (QI) material removed to less than 3% However, '774 teaches that impregnating pitches with less than 0.05% QI (col. 2, lines 55-60)

offer increased yields and increased density. '923 teaches that such pitches may be achieved by removing QI solids (col. 5, lines 13-30). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a pitch with a QI content less than 0.05% because '774 teaches that such pitched provide increased yield and density and to have produced the pitch by removing QI material because '923 teaches that such is a suitable method of lowering the QI of a pitch.

Response to Arguments

6. Applicant's arguments filed 2/6/2006 have been fully considered but they are not persuasive.

Applicant's arguments regarding the new limitations of claim 1 are unconvincing in view of newly cited Yamada '121.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cleveland whose telephone number is (571) 272-1418. The examiner can normally be reached on Monday-Thursday, 7-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael Cleveland
Primary Examiner
Art Unit 1762

4/16/2006